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EPA's 33/50 Program Company Profile

Olin Corporation

This Company Profile is part of a series of reports being developed by EPA to highlight the accomplishments of companies participating in the 33/50 Program. The 33/50 Program is an EPA voluntary pollution reduction initiative that promotes reductions in direct environmental releases and offsite transfers of 17 high-priority toxic chemicals. The program derives its name from its overall goals -- an interim goal of a 33% reduction by 1992 and an ultimate goal of a 50% reduction by 1995. The program uses 1988 Toxics Release Inventory (TRI) reporting as a baseline. In February, 1991, EPA began contacting the parent companies of TRI facilities that reported using 33/50 Program chemicals since 1988 to request their participation in the 33/50 Program. As of April, 1994, a total of 1,216 companies had elected to participate in the Program, pledging to reduce emissions of the 17 target chemicals by more than 355 million pounds by 1995. Companies are encouraged to set their own reduction targets, which may vary from the Program's national 33% and 50% reduction goals. Company commitments and reduction pledges continue to be received by EPA on a daily basis.

17 PRIORITY CHEMICALS TARGETED BY THE 33/50 PROGRAM

BENZENE
CADMIUM & COMPOUNDS
CARBON TETRACHLORIDE
CHLOROFORM
CHROMIUM & COMPOUNDS
CYANIDES
DICHLOROMETHANE*
LEAD & COMPOUNDS
MERCURY & COMPOUNDS
METHYL ETHYL KETONE
METHYL ISOBUTYL KETONE
NICKEL & COMPOUNDS
TETRACHLOROETHYLENE
TOLUENE
1,1,1-TRICHLOROETHANE
TRICHLOROETHYLENE
XYLENES

* Also referred to as methylene chloride

The 1992 TRI data revealed that releases and transfers of 33/50 Program chemicals declined by 40% between 1988 and 1992, surpassing the Program's 1992 interim reduction goal by more than 100 million pounds. This accomplishment, together with evidence from analysis of facilities' projected releases and transfers of the 17 priority chemicals, reported to TRI under the Pollution Prevention Act, offers strong encouragement that the 33/50 Program's ultimate goal of a 50% reduction by 1995 will be achieved.

EPA is committed to recognizing companies for their participation in the 33/50 Program and for the emissions reductions they achieve. The Program issues periodic Progress Reports, in which participating companies are listed and highlighted. In addition, Company Profiles, such as this one, are being prepared to provide more detailed information about companies that have written to EPA describing significant emissions reduction initiatives. Information presented in these profiles is drawn primarily from the company's written 33/50 Program communications and the annual TRI reports submitted by their facilities (including Pollution Prevention Act data reported to TRI in Section 8 of Form R). All company communications to EPA regarding the 33/50 Program are available to the public upon request.

EPA does not endorse the performance, worker safety, or environmental acceptability of any of the technical options discussed in this Profile. Mention of any product or procedure in this document is for informational purposes only, and does not constitute a recommendation of any such product or procedure, either express or implied, by EPA.

For information on the 33/50 Program, contact the TSCA Hotline at (202) 554-1404 or contact 33/50 Program staff directly by phone at (202) 260-6907 or by mail at Mail Code 7408, Office of Pollution Prevention and Toxics, U.S. EPA, 401 M Street, SW, Washington, D.C. 20460.

Olin Corporation

Olin Corporation has reduced its total releases and transfers of 33/50 Program chemicals by 67% from 1988 to 1992. The company has achieved this result through source reduction, in-process and post-process recycling and reclamation, and improved waste treatment. This Company Profile highlights successful actions taken at several Olin facilities.

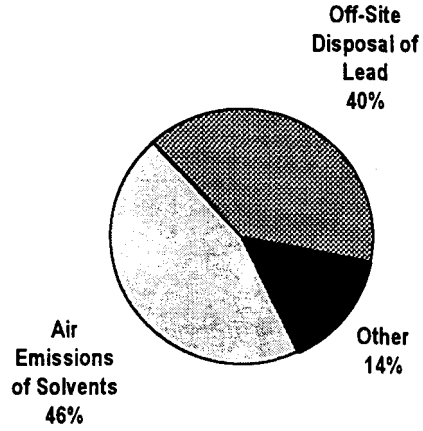
I. Corporate Background

Olin Corporation is a Fortune 200 company, headquartered in Stamford, CT, with 29 facilities nationwide in 15 states. The company manufactures a wide variety of products, including specialty chemicals, metals, and other materials, as well as products for the defense, aerospace and sporting ammunition industries.

In 1988, Olin reported releases of 14 of the 33/50 Program chemicals from 23 manufacturing facilities, as well as a number of non-33/50 TRI chemicals. Table I, at the end of this profile, presents the company's TRI data on releases and transfers for the whole company, while Table II provides these data for selected facilities.

Olin reported total releases and transfers of 2,040,150 pounds of 33/50 Program chemicals in 1988. Of this amount, 928,368 pounds were air emissions of solvents, and 817,062 pounds were off-site disposal of lead.

Sources of 1988 Releases and Transfers of 33/50 Program Chemicals



Releases and Transfers of 33/50 Program Chemicals Reported by Olin Corporation
(1000 pounds)

	1988	1992
33/50 Chemicals		
Benzene	5	4
Carbon tetrachloride	12	4
Chloroform	6	31
Chromium & compounds	2	<1
Cyanide compounds	<1	<1
Dichloromethane	289	165
Lead & compounds	920	53
Mercury	20	12
Methyl ethyl ketone	11	15
Nickel & compounds	22	44
Tetrachloroethylene	4	0
Toluene	5	8
1,1,1-Trichloroethane	644	252
Xylenes	102	85
*Total 33/50 Chemicals**	2,040	673

* Columns do not sum to totals due to rounding.

II. Corporate Environmental Strategy

Olin was one of the first companies to sign on to the 33/50 Program by making a commitment to reduce its releases and transfers of all 33/50 Program chemicals. Since then, the company has actively investigated opportunities to reduce its environmental impact and has implemented emission reduction options at many of its facilities. For example, Olin has adopted voluntary pollution prevention guidelines under the Responsible Care initiative of the Chemical Manufacturers Association (CMA), and has developed several additional company goals in areas including hazardous waste generation, wastewater treatment compliance, and the handling of existing hazardous waste remediation sites.

III. 33/50 Program Goals and Pollution Reduction Activities

The company established a company-wide goal of reducing total releases and transfers of 33/50 Program chemicals by 50% in 1995, based on 1988

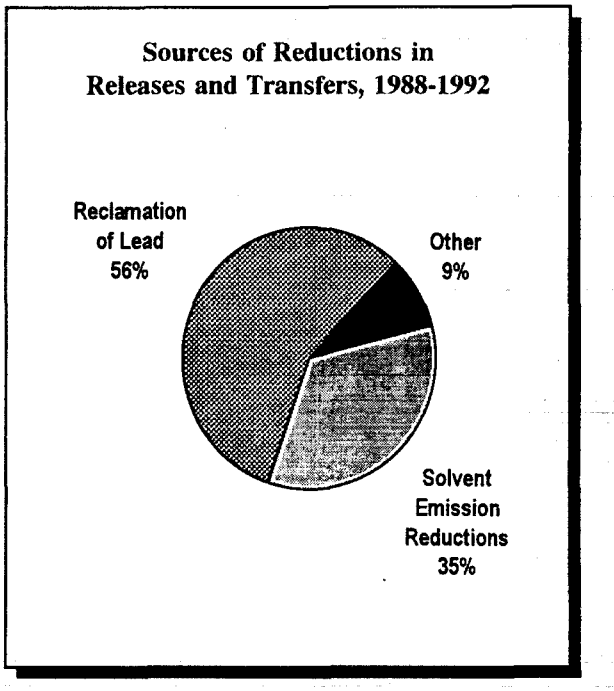
levels. Olin subsequently strengthened this pledge for itself in order to maintain a strong incentive to develop and implement pollution reduction activities, committing to reduce total releases and transfers of 33/50 Program chemicals by 85% by year-end 1998, based on 1988 levels.

Olin has pursued a number of approaches to reduce its releases of 33/50 Program chemicals and meet its 33/50 Program goals, including source reduction, in-process and post-process recycling and reclamation, and improved waste treatment. Examples of significant projects at Olin facilities that have successfully reduced the emissions of 33/50 program chemicals to the environment include:

Olin Corp., Rochester, NY. Olin's Rochester facility produces over 60 different types of specialty chemicals -- relatively low volume products tailored to the specific needs of individual customers, including biocides (zinc or sodium pyrithione), aniline dyes, and pharmaceutical ingredients. In 1988, the facility reported air emissions of 11,540 pounds of carbon tetrachloride, which is used as a non-reactive diluent. In order to recover carbon tetrachloride from air vents, the plant installed a scrubber and additional process vent collection equipment, and now reuses the reclaimed material in several of the facility's production processes. 1992 air emissions of carbon tetrachloride were reduced to 3,437 pounds at this facility, a reduction of 70%. This facility is also investigating the substitution of carbon tetrachloride and other 33/50 Program chemicals with non-toxic raw materials.

Olin Corporation's pledged reductions of releases and transfers under the 33/50 Program of 50% by 1995 and 85% by year end 1998 are augmented by other key corporate environmental goals and commitments.

Olin Ordnance, Red Lion, PA. The Red Lion facility produces various munitions for the military. In 1988, this facility reported air emissions of 122,535 pounds of 1,1,1-trichloroethane. This chemical is used as a multi-purpose cleaner and degreaser. The Red Lion facility took a number of steps to reduce the use of this chemical, including: restricting access and requiring employees to justify their use of the material; identifying material substitution options for products not required to use the chemical (e.g., by military procurement specifications); and modifying the chiller on a solvent degreaser to enhance vapor capture. As a result of these efforts, air emissions of 1,1,1-trichloroethane were reduced to 21,700 pounds in 1992, a reduction of over 80% from 1988 levels. The facility is currently investigating two additional actions to further reduce the use of 1,1,1-trichloroethane: installing a parts washer which will use water-based cleaners instead of chlorinated solvents, or altering the overall production process to completely eliminate the cleaning process.



Bridgeport Brass Co., Indianapolis, IN. In 1988 this facility reported air emissions of 37,000 pounds of 1,1,1-trichloroethane and dichloromethane, which were used as degreasers. By 1990, the facility had completely eliminated its use of these two chlorinated solvents by switching to the use of water-based soaps and hot water rinsing in its metal processing and maintenance operations.

Main Plant Facility, East Alton, IL. Olin's East Alton Main Plant facility used to landfill large quantities of lead wastes (off-site disposal of 815,853 pounds in 1988), primarily from bullets test-fired into sand traps at the Winchester sporting ammunition plant. The facility used to screen

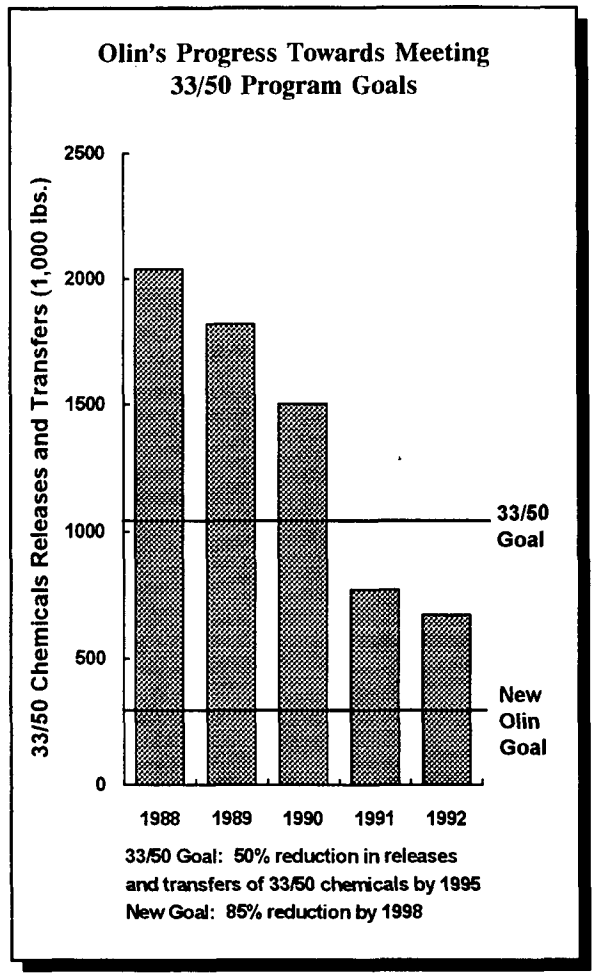
as much lead as possible out of the sand for reuse in their own production processes, and landfill the remaining lead-contaminated sand off-site. The facility began selling unscreened material to a battery manufacturer, and more recently began selling it to a lead smelter. The sand/lead mixture is used directly as a recycled raw material in the smelting process. The landfilling of lead wastes has thus been dramatically reduced to 39,673 pounds in 1992, for an overall reduction of 95%.

Upon achieving its initial reduction goal of 50%, Olin strengthened its goal to an 85% reduction by 1998.

The company as a whole continues to explore additional opportunities to reduce its releases and transfers of toxic chemicals, both through the 33/50 Program and the Responsible Care initiative.

IV. Progress Towards 33/50 Reduction Goals

As a result of these and other efforts, Olin has made rapid progress in reducing its releases and transfers of 33/50 Program chemicals. Between 1988 and 1992, Olin reduced its releases and transfers of 33/50 Program chemicals by 67%, a reduction of 1,367,614 pounds. Much of this reduction was the result of eliminating or capturing 473,114 pounds of air emissions of 33/50 Program solvents. In addition, Olin reduced off-site disposal of 33/50 Program chemicals by 876,904 pounds between 1988 and 1992, including shifting 776,180 pounds of lead from off-site disposal in a landfill to off-site recycling -- an action that represents a move up the pollution prevention hierarchy.



V. Summary of Olin's Experience

Overall, Olin Corporation's participation in the 33/50 Program has been extremely positive. By 1992, Olin had already surpassed its 1995 goals for reducing releases and transfers of 33/50 Program chemicals. Olin achieved these successes through a mixture of source reduction, recycling and reclamation, and treatment. This success is projected to continue, and Olin has set a new goal of achieving an 85% reduction in releases and transfers of 33/50 Program chemicals by 1998.

Table I
Olin Corporation
Releases and Transfers of 33/50 Program Chemicals, 1988-1992

Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Releases to Land (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)	Percent Change 1988-1992 Total Releases and Transfers
Carbon tetrachloride	1988	11,540	0	0	18	63	11,621	
	1989	10,807	0	0	20	801	11,628	
	1990	8,551	0	0	514	2,354	11,419	
	1991	4,222	0	0	2	117	4,341	
	1992	3,437	0	0	181	99	3,717	-68%
Dichloromethane	1988	212,743	0	0	393	75,548	288,684	
	1989	182,020	230	0	837	4,482	187,569	
	1990	219,071	2	0	431	5,328	224,832	
	1991	182,108	0	0	22	11,069	193,199	
	1992	161,751	0	5	11	2,918	164,685	-43%
Lead and Compounds	1988	3,040	475	1,000	634	915,212	920,361	
	1989	2,621	761	250	388	421,965	425,985	
	1990	1,585	535	750	10	462,512	465,392	
	1991	1,781	261	336	299	44,998	47,675	
	1992	1,891	776	328	310	49,351	52,656	-94%
1,1,1-Trichloroethane	1988	639,310	310	0	0	3,983	643,603	
	1989	684,011	260	0	0	250	684,521	
	1990	352,799	227	0	0	250	353,276	
	1991	269,970	0	0	0	42,899	312,869	
	1992	206,185	0	0	0	45,671	251,856	-61%
Other 33/50 Program Chemicals	1988	73,541	7,597	5,057	6,740	82,946	175,881	
	1989	98,176	7,888	4,431	4,046	395,330	509,871	
	1990	69,453	5,039	3,926	661	370,644	449,723	
	1991	65,264	4,459	2,335	318	140,637	213,013	
	1992	89,842	3,446	3,111	414	102,809	199,622	13%
All 33/50 Program Chemicals	1988	940,174	8,382	6,057	7,785	1,077,752	2,040,150	
	1989	977,635	9,139	4,681	5,291	822,828	1,819,574	
	1990	651,459	5,803	4,676	1,616	841,088	1,504,642	
	1991	523,345	4,720	2,671	641	239,720	771,097	
	1992	463,106	4,222	3,444	916	200,848	672,536	-67%
Percent Change, 1988-1992		-51%	-50%	-43%	-88%	-81%	-67%	

Notes: (1) 1991 and 1992 Total Releases and Transfers do not include on- or off-site recycling or energy recovery.

Table II
Olin Corporation
Releases and Transfers of 33/50 Program Chemicals at Selected Facilities, 1988-1992

Facility/Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Releases to Land (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)
Olin Corp., Rochester, NY							
Carbon tetrachloride	1988	11,540	0	0	18	63	11,621
	1989	10,807	0	0	20	801	11,628
	1990	8,551	0	0	514	2,354	11,419
	1991	4,222	0	0	2	117	4,341
	1992	3,437	0	0	181	99	3,717
Other 33/50 Program Chemicals	1988	15,013	0	0	1,376	11,485	27,874
	1989	8,479	0	0	1,730	3,711	13,920
	1990	7,198	0	0	618	221,543	229,359
	1991	6,981	0	0	37	30,007	37,025
	1992	7,056	0	5	26	29,449	36,536
All 33/50 Program Chemicals	1988	26,553	0	0	1,394	11,548	39,495
	1989	19,286	0	0	1,750	4,512	25,548
	1990	15,749	0	0	1,132	223,897	240,778
	1991	11,203	0	0	39	30,124	41,366
	1992	10,493	0	5	207	29,548	40,253
Olin Ordnance, Red Lion, PA							
1,1,1-Trichloroethane	1988	122,535	0	0	0	0	122,535
	1989	145,000	0	0	0	0	145,000
	1990	30,000	0	0	0	0	30,000
	1991	33,440	0	0	0	0	33,440
	1992	21,700	0	0	0	0	21,700
Other 33/50 Program Chemicals	1989	5,500	0	0	0	0	5,500
	1990	5,820	0	0	0	0	5,820
	1991	5,600	0	0	0	6,600	12,200
	1992	1,669	0	0	0	0	1,669
All 33/50 Program Chemicals	1988	122,535	0	0	0	0	122,535
	1989	150,500	0	0	0	0	150,500
	1990	35,820	0	0	0	0	35,820
	1991	39,040	0	0	0	6,600	45,640
	1992	23,369	0	0	0	0	23,369
Bridgeport Brass Corp., Indianapolis, IN							
Dichloromethane	1988	22,000	0	0	0	0	22,000
	1989	28,000	0	0	0	0	28,000
1,1,1-Trichloroethane	1988	15,000	0	0	0	0	15,000
	1989	1,211	0	0	0	0	1,211

Table II

Olin Corporation

Releases and Transfers of 33/50 Program Chemicals at Selected Facilities, 1988-1992

Facility/Chemical	Year	Total Air Emissions (pounds)	Surface Water Discharges (pounds)	Releases to Land (pounds)	Transfers to POTW (pounds)	Transfers Off-site for Treatment/ Disposal/Other (pounds)	Total Releases and Transfers (1) (pounds)
Other 33/50 Program Chemicals	1988	750	306	0	278	1,000	2,334
	1989	104	242	0	386	3,009	3,741
	1990	133	2	0	205	6,505	6,845
	1991	175	31	0	512	5,294	6,012
	1992	248	9	0	615	1,744	2,616
All 33/50 Program Chemicals	**1988**	**37,750**	**306**	**0**	**278**	**1,000**	**39,334**
	1989	**29,315**	**242**	**0**	**386**	**3,009**	**32,952**
	1990	**133**	**2**	**0**	**205**	**6,505**	**6,845**
	1991	**175**	**31**	**0**	**512**	**5,294**	**6,012**
	1992	**248**	**9**	**0**	**615**	**1,744**	**2,616**
Main Plant Facility, East Alton, IL							
Lead	1988	1,700	150	0	0	815,853	817,703
	1989	1,700	250	0	0	330,088	332,038
	1990	1,163	267	0	0	300,616	302,046
	1991	1,500	210	0	0	35,953	37,663
	1992	1,500	680	0	0	39,673	41,853
Other 33/50 Program Chemicals	1988	272,700	1,453	0	0	5,173	279,326
	1989	282,800	945	0	0	4,743	288,488
	1990	239,799	777	0	0	9,008	249,584
	1991	151,501	670	0	0	8,251	160,422
	1992	91,922	956	0	0	3,730	96,608
All 33/50 Program Chemicals	**1988**	**274,400**	**1,603**	**0**	**0**	**821,026**	**1,097,029**
	1989	**284,500**	**1,195**	**0**	**0**	**334,831**	**620,526**
	1990	**240,962**	**1,044**	**0**	**0**	**309,624**	**551,630**
	1991	**153,001**	**880**	**0**	**0**	**44,204**	**198,085**
	1992	**93,422**	**1,636**	**0**	**0**	**43,403**	**138,461**

Notes: (1) 1991 and 1992 Total Releases and Transfers do not include on- or off-site recycle or energy recovery.